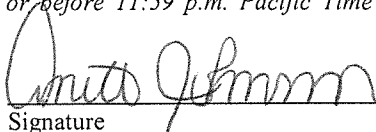


PATENT

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Signature

Applicant : Hyun-Sook Jung, et al. Confirmation No. 8247  
Application No. : 09/775,315  
Filed : February 1, 2001  
Title : POSITIVE ACTIVE MATERIAL FOR RECHARGEABLE LITHIUM  
BATTERY AND METHOD OF PREPARING SAME  
  
Grp./Div. : 1795  
Examiner : Julian A. Mercado  
  
Docket No. : 41671/P849

**APPELLANT'S SUPPLEMENTAL REPLY BRIEF**

Mail Stop Appeal Brief-Patents  
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Post Office Box 7068  
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September 27, 2010

Commissioner:

In his Supplemental Answer, the Examiner states that "the claims are given their broadest reasonable interpretation and in a manner which is not inconsistent with what is disclosed in the specification" and appears to argue that the lack of a positive statement in the specification that some of the binder *will* remain in the mixture supports the Examiner's interpretation of the claims as not including the first binder. Supplemental Answer, page 11. However, the MPEP states that "the scope of claims in patent applications [is determined] not solely on the basis of the claim language, but upon giving claims their broadest reasonable construction 'in light of the specification as it would be interpreted by one of ordinary skill in the art.'" MPEP § 2111 (citing *In re Am. Acad. of Sci. Tech. Ctr.*, 70 USPQ2d 1827 (Fed. Cir. 2004)). Indeed, the MPEP emphasizes that "[t]he broadest reasonable interpretation of the claims must also be consistent

with the *interpretation that those skilled in the art would reach*." MPEP § 2111 (citing *In re Cortright*, 49 USPQ2d 1464, 1468 (Fed. Cir. 1999)). As noted in Appellant's Brief and in Appellant's Reply Brief, those of ordinary skill in the art would understand that the first binder would not be completely evaporated, and that some of the binder would remain in the chemical mixture. That the specification notes that the binder may not be *completely* removed and that traces of the binder *may* remain in the mixture supports this contention. Specification, page 7, lines 15-18. Although the language in the specification states that the binder may remain in the mixture, those of ordinary skill in the art familiar with the process of binder evaporation looking at that language in the specification would have understood that traces of binder do remain in the mixture. Accordingly, when considered "in light of the specification *as it would be interpreted by one of ordinary skill in the art*," the present claims do indeed include a positive recitation of a first binder, and the Examiner's continued failure to give that limitation patentable weight is improper.

In discussing the continued rejection of claim 11 over Mayer, the Examiner argues that "the water added in Mayer functions as a binder insofar as it washes the reacted pellets and, in a manner similar to what is presently claimed, is subsequently evaporated." Supplemental Answer, page 11. However, the Examiner provides no analysis or reasoning as to how or why a disclosure of *washing* reacted pellets constitutes a disclosure that the water *functions as a binder*. Indeed, the discussion in Mayer suggests that the water does not function as a binder. IN particular, Mayer states that "[t]he reacted pellets were then crushed, ground, and sieved to less than 63  $\mu\text{m}$ , follow[ed] by *washing with deionized water* and vacuum drying the powder (to *remove any remaining water soluble reactants or unwanted products*)." Column 15, lines 52-56. As Mayer clearly states that the pellets are *washed* with water to *remove water soluble reactants or unwanted products*, and nowhere teaches or suggests that the water in any way aids or promotes adhesion or binding, Mayer fails to teach or suggest that the water functions as a binder. Accordingly, the water relied on by the Examiner is not akin to the first binder recited in the present claims.

Moreover, as noted in Appellant's Reply Brief, the Example at column 15, lines 40-61 of Mayer (which the Examiner cites as disclosing a water binder) discusses the synthesis of  $\text{LiNiO}_2$ ,

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and does not discuss the synthesis of a positive active material comprising a mixture of lithium nickel cobalt oxides and lithium manganese oxides in which the lithium nickel cobalt oxides and lithium manganese oxides remain distinct chemical species and are bonded together by a first binder adapted to be evaporated, as presently claimed. Instead, that Example describes the *reaction* of  $\text{LiNO}_3$  with  $\text{NiO}$  to form  $\text{LiNiO}_2$ . That the Example cited by the Examiner describes a *reaction* of the  $\text{LiNO}_3$  with  $\text{NiO}$  and not a *mixture* of those components is demonstrated by the described heating procedure (i.e., first at  $400^\circ\text{C}$  for 4 hours to remove  $\text{NO}_2$  and other gasses, and second at  $750^\circ\text{C}$  for 16 hours), and by the identification of the resulting pellets as *reacted* pellets. Column 47-56. Accordingly, the Examiner's assertion that the cited Example includes a mixture of  $\text{LiNO}_3$  with  $\text{NiO}$  is erroneous.

In asserting that the  $\text{LiNiO}_2$  example discloses a mixture of oxides, the Examiner relies on a discussion of composite positive electrodes in Mayer at column 8, lines 42 et seq. In particular, the Examiner argues that because this excerpt discloses that "mixtures" are composed of distinct chemical species, the  $\text{LiNO}_3$  and  $\text{NiO}$  discussed in the  $\text{LiNiO}_2$  example remain distinct chemical species. However, Mayer provides this definition of "mixture" in the context of *composite positive active materials*, and the  $\text{LiNiO}_2$  example does not describe the synthesis of a composite positive active material. Rather, the  $\text{LiNiO}_2$  example describes the synthesis of a material that could be used as an active material in an electrode. Mayer doesn't even appear to disclose the use of the *synthesized*  $\text{LiNiO}_2$  in a composite positive active material. Instead, when discussing composite positive active materials, Mayer appears to disclose the combination of different oxides. Even if the synthesized  $\text{LiNiO}_2$  could be used as one component of a composite active material, Mayer nowhere teaches or suggests that the synthesized  $\text{LiNiO}_2$  and another active material species are bonded together by a first binder that is adapted to be evaporated. As such, although Mayer may reference mixtures in which certain materials remain distinct chemical species, that reference does not apply to the  $\text{LiNiO}_2$  synthesis example relied on by the Examiner as disclosing water as akin to the recited first binder. Specifically, the  $\text{LiNiO}_2$  synthesis example fails to disclose lithium manganese oxides and lithium nickel cobalt oxides that remain distinct chemical species and that are bonded together by a first binder adapted to be

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evaporated. As Mayer nowhere discloses the claimed mixture of oxides being bonded together by a first binder adapted to be evaporated, claim 11 is allowable over Mayer.

Finally, in responding to Applicant's arguments regarding the rejection of claims 1-4, the Examiner continues to assert that Applicant's arguments regarding the superior thermal stabilities and mid-discharge voltages are irrelevant since those properties are not recited in the present claims. However, as noted in Appellant's Reply Brief, Applicant relied on the failure of the cited references to disclose the mid-discharge voltages and thermal stabilities to show that those properties would not have been expected from the disclosure in the cited references. As those noted properties are presented to show *unexpected results* in order to rebut any *prima facie* case of obviousness, those properties are not required to be positively recited in the claims. Instead, those results are presented as evidence against obviousness, and are not argued as positive claim recitations. Accordingly, the absence of these properties from the claims is irrelevant. Also, as the claimed mixture of oxides exhibits unexpected and desirable results, the Examiner's continued rejection of claims 1-4 is improper.

Respectfully submitted,

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